



ACCEPTANCE TEST DATA

Date	Job Number	Part Number	Model	Frequency	Output Power
December 17, 2020	17082	2235	2235-001	400 – 1000MHz	1600W

ELECTRICAL SPECIFICATIONS @ 208V_{AC}, 3-Phase, 25°C ambient, 50Ω System

Parameter	Specifications						Frequency (MHz)										P/F
	Symbol	Min	Typ	Max	Unit	Notes	400	500	600	700	800	900	1000				
Operating Frequency - BW	BW	20		1000	MHz		x	x	x	x	x	x	x		Pass		
Output Power @ 3dB G.C.P. (CCDF Method)	P _{SAT}	1600			Watt	Record	65.8	65.7	65.4	64.2	65.6	64.8	64.5		Pass		
Output Power @ 1dB G.C.P.(CCDF Method)	P _{1dB}	1300			Watt	Record	64	63.6	64.5	63.1	63.3	63.8	61.6		Pass		
Power Gain @ P _{OUT} =2000W	G _{1dB}	63			dB	Record	71.5	72.4	67.7	65.9	66.2	68.8	68.8		Pass		
Input Power for rated P _{OUT} = 2000W	P _{IN}		0		dBm	Record	-8.5	-9.4	-4.7	-2.9	-3.2	-5.8	-5.8		Pass		
Small Signal Gain Flatness (P _{IN} = -30dBm)	ΔG			±3.5	dB	Plot 1	x	x	x	x	x	x	x		Pass		
Leveled ALC Flatness - 1600W	ΔALC			±1.0	dB	Plot 2	x	x	x	x	x	x	x		Pass		
Gain Adjustment Range	VVA	20			dB	Plot 3	x	x	x	x	x	x	x		Pass		
Gain @ Shutdown Condition, P _{IN} = 5dBm	G _{SD}			-35	dB	Plot 4	x	x	x	x	x	x	x		Pass		
Input Return Loss	S11			-10	dB	Plot 1	x	x	x	x	x	x	x		Pass		
Noise Figure @ Max Gain 20-300MHz	NF			20	dB		x	x	x	x	x	x	x		N/A		
Noise Figure @ Max Gain	NF			18	dB	Record	17.4	11.6	10.9	11.2	15.3	10.2	11.2		Pass		
Phase Tracking ≤ P _{SAT}	ΔΦT			±10	Deg.	Plot ?	x	x	x	x	x	x	x		Pass		
Delta @ operating temperature, unit to unit inter-modulation (Third-Order Intercept-Point) 2-Tones @ 54dBm/Tone. Δ=1MHz	IMD			-20	dBc	Record	-34	-30	-30	-31	-31	-30	-29		Pass		
Harmonics @ P _{OUT} =1600W	3rd			-10	dBc	Record	-28	-35	-48	-48	<-70	<-70	-68		Pass		
	4th			-25			-60	<-70	<-70	<-70	<-70	<-70	<-70	<-70		Pass	
	5th			-15			-58	<-70	<-70	<-70	<-70	<-70	<-70	<-70		Pass	
Spurious Signals	Spur			-60	dBc	Record	<-70	<-70	<-70	<-70	<-70	<-70	<-70		Pass		
Switching Time, 1KHz TTL, P _{IN} = 0dBm	T _{ON}			10	μSec	Record	2.9								Pass		
	T _{OFF}			3			1.4								Pass		
Pulse performance, F _C = 700MHz, P _{OUT} = 1600W(peak) Pulse Period: 150uSec, 67% Duty Cycle	T _{RISE}			250	nSec	Plots 5,6	110								Pass		
	T _{FALL}			250			50								Pass		
AM Modulation 85% depth F _C = 700MHz @ 200W average (~1600W peak)	1kHz			-20	dBc	Record	-28								Pass		
	20kHz			-20	dBc	Record	-28								Pass		

ELECTRICAL SPECIFICATIONS (cont.) @ 208V_{AC}, 3-Phase, 25°C ambient, 50Ω System

Parameter	Specifications						Frequency (MHz)										P/F								
	Symbol	Min	Typ	Max	Unit	Notes	400	500	600	700	800	900	1000												
Operating Voltage (3-phase 50/60Hz)	V _{AC}	180	208	260	Volt	Verify											208	Pass							
Current Consumption @ Shutdown	I _{SD}		2	3	Amp	Record											2.1	Pass							
Quiescent Current	I _{DQ}		6.5	8	Amp	Record											6.3	Pass							
Power Consumption @ P _{OUT} = 1600W, CW	P _D			12	kWatt	Record											7719	7791	8801	9631	8909	11182	11037	Pass	
NTE Test, MGC Mode LCD Display = 63.5dBm	P _{OOD}			63.5	dBm	Record P _{OUT}											x	x	x	x	x	x	x	N/A	
						Record I _{AC}															x	x	x	x	x
Input Overdrive - Shutdown (Mode ALC, 59dBm)	P _{IOD}			10	dBm	Verify											√	√	√	√	√	√	√	Pass	
VSWR - Backoff	VSWR		3:01			Verify											√								Pass
Thermal Overload - Shutdown	T _{OD}			85	°C	Verify											√								

INTERFACE

System Controller	SW/FW	NTE	Max ALC	VVA		Fwd./Rev.	Watt/dB	USB	RS232/RS422	Monitors
	Version	dBm	dBm	Min	Max	-	-	-	-	-
Verify / Record	01.27.22	63.5	63	30	65	N/A	√	-	√	-

Performance Plots

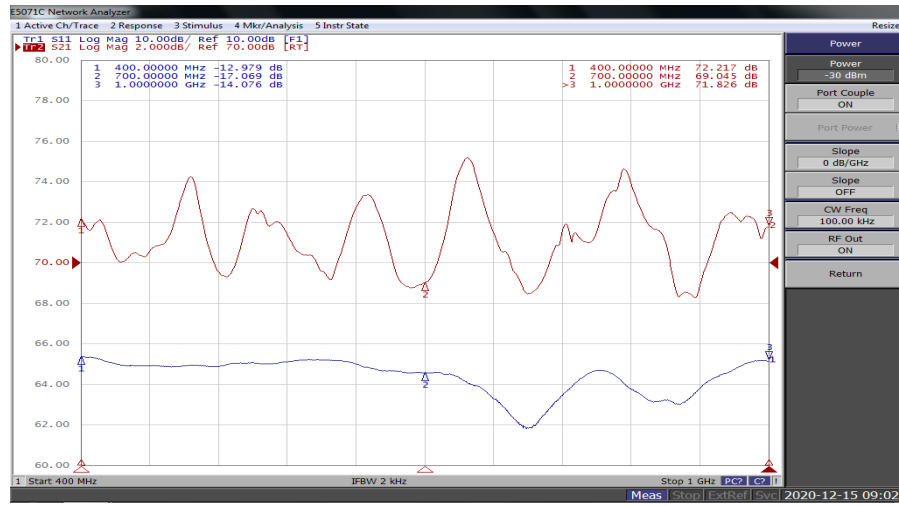
Plot 1 - Full Band Small Signal Gain

Top Curve: Small Signal Gain @ $P_{IN} = -30\text{dBm}$

Reference: 70dB, 2dB/div.

Bottom Curve: Input Return Loss

Reference: 10dB, 10dB/div.



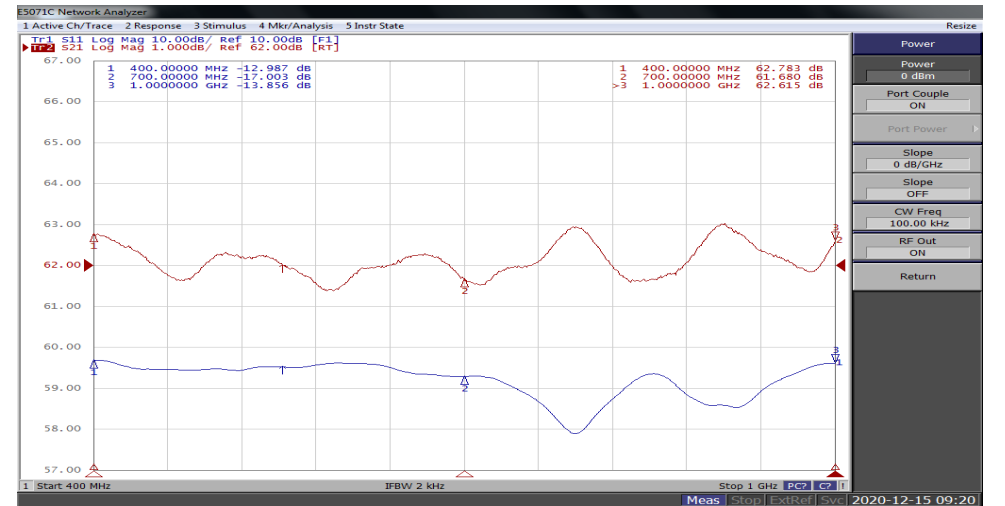
Plot 2 - Full Band ALC Flatness @ 1600W

Top Curve: ALC @ 1600W, $P_{IN} = 0\text{dBm}$

Reference: 62dB, 1dB/div.

Bottom Curve: Input Return Loss

Reference: 10dB, 10dB/div.



Performance Plots

Plot 3 - Gain adjustment range

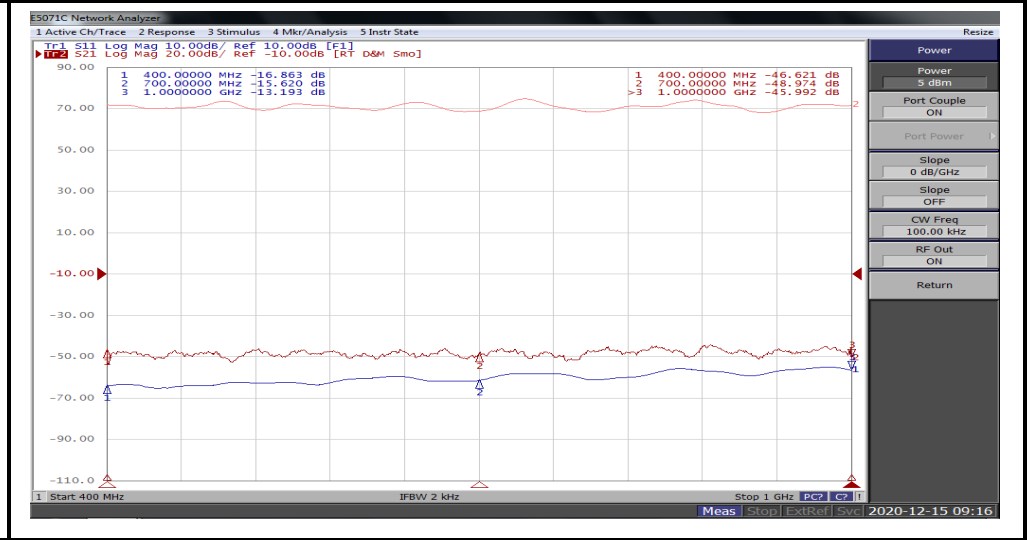
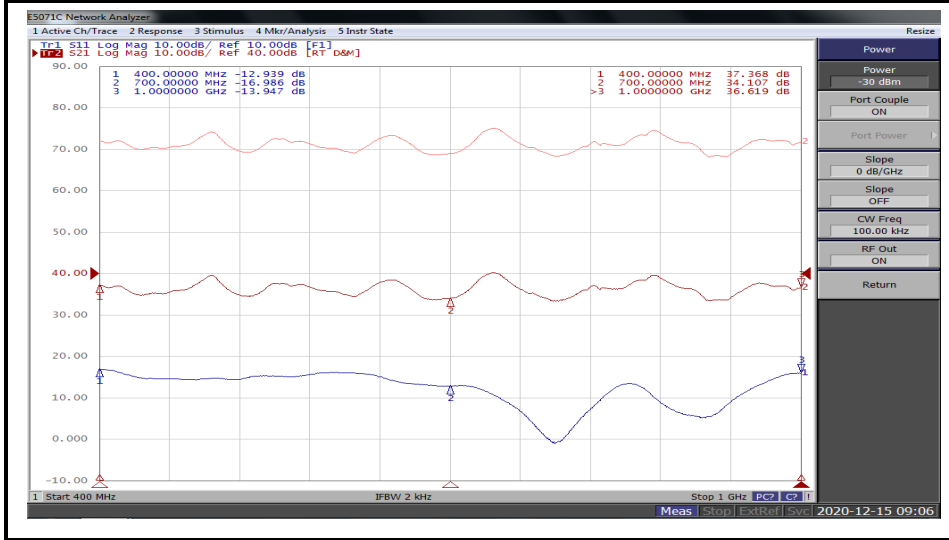
Top Curve: Small Signal Gain @ $P_{IN} = -30\text{dBm}$
 Middle Curve: Gain at Max Attenuation, $P_{IN} = -30\text{dBm}$
 Reference: 40dB, 10dB/div.

Bottom Curve: Input Return Loss
 Reference: 10dB, 10dB/div.

Plot 4 - Gain at shutdown condition

Top Curve: Small Signal Gain @ $P_{IN} = -30\text{dBm}$
 Middle Curve: Gain @ Shutdown Condition, $P_{IN} = +5\text{dBm}$
 Reference: -10dB, 20dB/div.

Bottom Curve: Input Return Loss
 Reference: 10dB, 10dB/div.



Performance Plots

Plot 5 - Pulse performance

Pulse at 62dBm peak power

Plot 6 - Pulse performance

Pulse risetime: 110nsec
Pulsefalltime:50.5nsec

